

ABSTRACT

A free curved surface precision machining tool for precision-machining a surface to be machined with the lower end in contact therewith by rotation around an axis x . It includes a drum-shaped tool having a rotation axis x orthogonal to the axis z and rotationally driven around the rotation axis x . This drum-shaped tool has a convex machining surface in the form of an arcuate rotary body obtained by rotating an arc of a radius r with the center at the intersection O between the axis z and the rotation axis x around the rotation axis x . The convex machining surface contacts the surface to be machined to precision-machine the latter, while the convex machining surface is rotated around the orthogonal axis x so as to disperse the machining position of the convex machining surface.